

Gas System
Operator

Gas Incident and Emergency Overview

We will start at 14.02 to allow participants
to finish previous meetings and join the call

nationalgrid



While you are waiting, please
access Sli.do which we will be
using for Q&A

Event Code:

#GTX11

Sli.do Instructions:

You can access Sli.do at www.sli.do or by
downloading
the Sli.do app.

Once you've logged on, enter the code above
when prompted.



Welcome and Opening

Thank you for joining us today

Please feedback via SLIDO

**Slido.com
#GTX11**



Who will be speaking today?

**Thomas
Wilcock**
Emergency &
Compliance
Manager



**Jennifer
Pemberton**
Stakeholder
Experience
Manager



Logistics



Should last for approximately about 90 min



Questions and polling via slido.com #GTX11



All callers will be placed on mute



We will circulate the slides and a recording of this webinar

Agenda

What is an NGSE?

NGSE origins and documentation

The Network Emergency Coordinator

Pre-emergency (Incidents)

NGSE Stages

The Network Emergency Management Team

Exercise Celsius

Questions

What is an NGSE?



What is a Network Gas Supply Emergency?

“A potential or actual **supply emergency** on the **primary system**”

(NEC Safety Case)



Supply emergency: As defined by the Gas Safety (Management) Regulations 1996 (GS(M)R), an emergency endangering persons and arising from a loss of pressure in a network or any part thereof.



Primary system: The National Transmission System (NTS)

In other words...

A Network Gas Supply Emergency is **potential** or **actual** loss of pressure in the Network that would require prompt and appropriate action to prevent any dangerous occurrence.

Network Gas Supply Emergency (NGSE)

Insufficient supplies	Gas Deficit Emergency	Insufficient gas in part, or parts, of the network, and no constraint on the ability to move gas into the affected area, if it is available
	Safety Monitor Breach	There is, or may be, insufficient gas storage available to meet the winter demand conditions
Critical transportation constraint (CTC)		Sufficient gas is available within the network as a whole but a constraint means that it is not physically possible to move gas into the area where a supply emergency is developing

Case study – 1st March 2018



UK to run out of gas TODAY:
National Grid warns of energy
crisis as snow storm Emma rages



Could the UK run out of GAS? Freezing
weather sees demand hit a SIX-YEAR
high as National Grid plunders
suppliers for more



DEEP FREEZE Power crisis as demand for gas soars and
storage warnings 'ignored'

For the first time in almost a decade National Grid has said that gas supplies may not be enough
to meet demand



Gas supply fears as cold snap continues



UK running out of gas, warns National
Grid

NGSE Origins and Documentation



Legislation & Procedure Hierarchy

Gas Safety (Management) Regulations GS(M)R



NEC Safety Case
Transporter Safety Cases



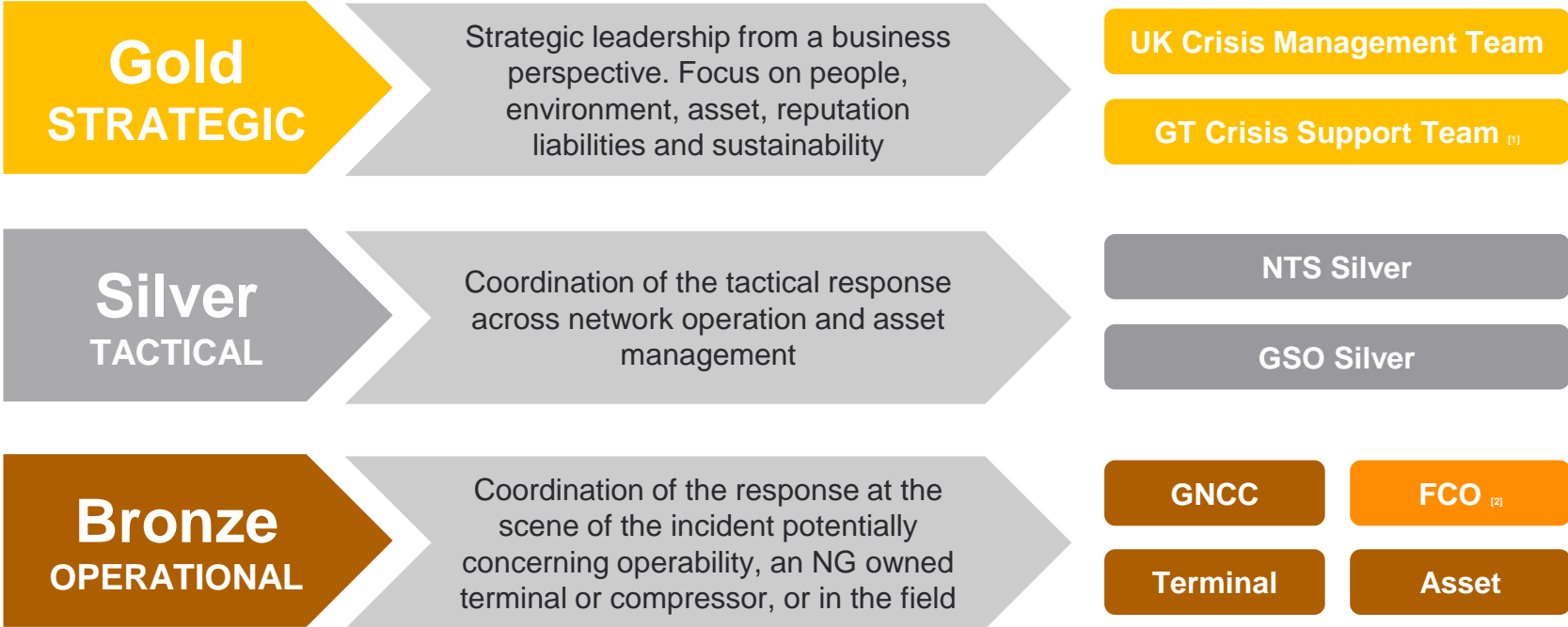
Network Gas Supply Emergency Procedure (E/1)



Detailed Gas Supply Emergency
Procedures (E/3)



3-Tiered Response



[1] Future enhancement

[2] GDN Engineers

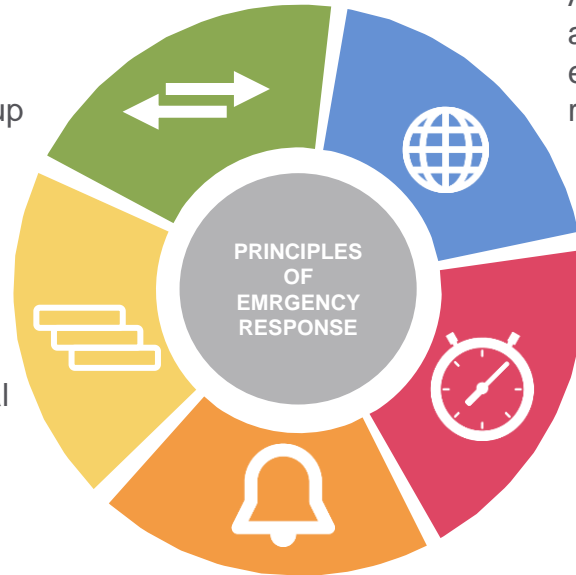
Response Philosophy

DISCRETE RESPONSES WITH WELL PRACTISED INTERLINKAGES

Response teams with a clear priority/focus with effective communications to ensure a joined up response

SOCIETAL IMPACT

Accurately balance process safety risks associated with asset failure, environmental impacts and public safety risks of losing gas supply



3-TIERED RESPONSE

Clear accountabilities at strategic, tactical and operational levels with clear accountabilities

PRUDENT OVERRESPONSE

React quickly and to the level of potential of an incident. Response level can be reduced but valuable time is lost if it needs to be built up

PROACTIVE NOTIFICATION

Ensure rapid early notification of scenarios internally and externally and build detail through the response

Quick poll

What elements of the pre-emergency tools do you want to know more about?

- Trading
- Operating margins
- Capacity scale-back
- Demand side response
- Other – please explain



The role of the NEC

Network
Emergency
Co-ordinator

Network Emergency Coordinator



Role performed by National Grid but NEC is independent of NG & Gas Transmission



Co-ordination of actions of gas industry to prevent or minimise safety consequences of a supply emergency



Independent from any commercial interests of industry, including National Grid

Network Emergency Coordinator



Industry parties have a duty to co-operate with the NEC under GS(M)R



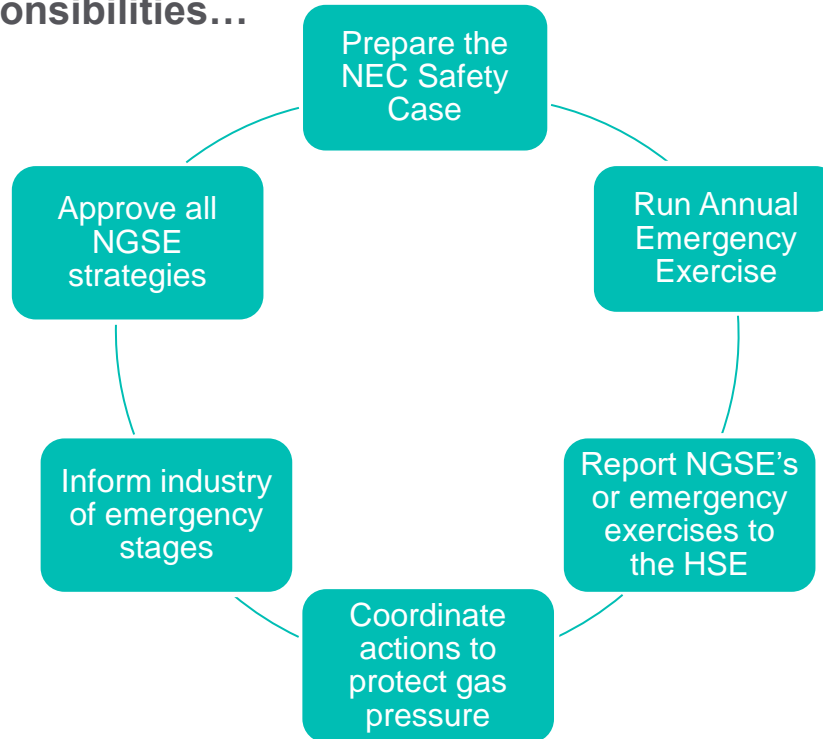
NEC has the authority to direct gas consumers to reduce or cease consumption or increase supply within a given timeframe



Failure of NTS Users to co-operate with NEC directions could result in prosecution under criminal law

Network Emergency Coordinator

NEC responsibilities...



Quick poll - results

What elements of the pre-emergency tools do you want to know more about?

- Trading
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- Other – please explain

Pre-Emergency (Incidents)



Pre-emergency

Business as Usual & Constraint Management

- Shipper Balancing & Incentives
- Transporter Balancing/Capacity Actions & Incentives
- ANS Messages & Notices

Shippers incentivised to balance themselves

NTS reconfiguration, linepack usage, DN short term Flow Swaps

National Grid trade to move SMP and drive NTS balance

Contractual limits enforced (capacity limits, ramp rates)

Scaleback Off-peak Exit Capacity & cease release of further Daily Firm Exit Capacity

NG trade with Shippers to reduce demand
(Exit Capacity Buyback, Offtake Flow Reduction & Locational Energy trading)

Issue Gas Balancing Notification to industry

Utilise Operating Margins Gas if necessary

Margins Notice / Gas Balancing Notification

TODAY: 10 AUGUST 2021



Gas Balancing Notifications

Margins Notice Trigger

510.50mcm

Demand Forecast
135.40 mcm

TOMORROW (D-1): 11 AUGUST 2021



Gas Balancing Notifications

Margins Notice Trigger

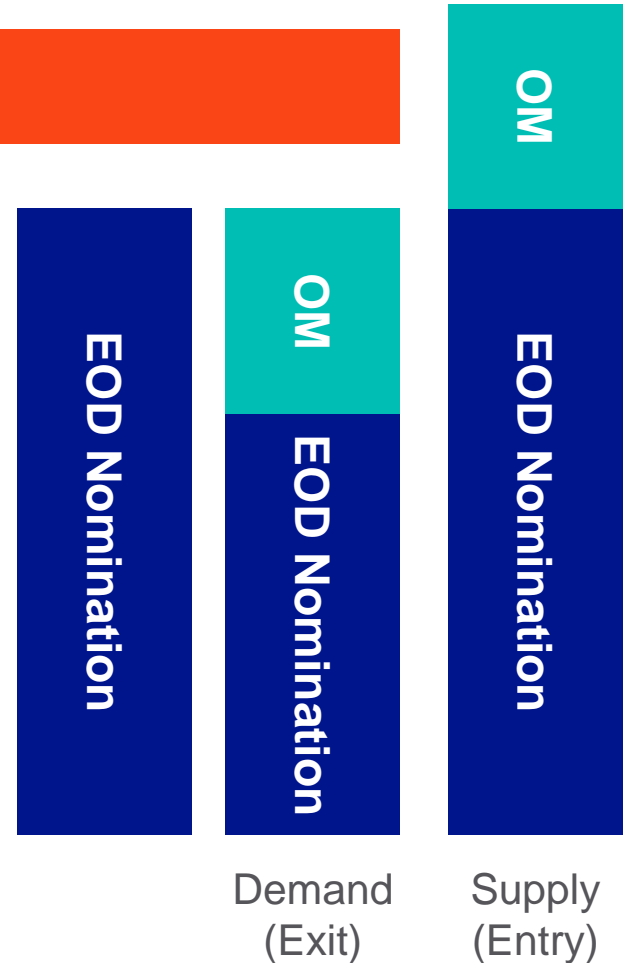
Published 14:00

Demand Forecast
139.00 mcm

<https://mip-prd-web.azurewebsites.net/>

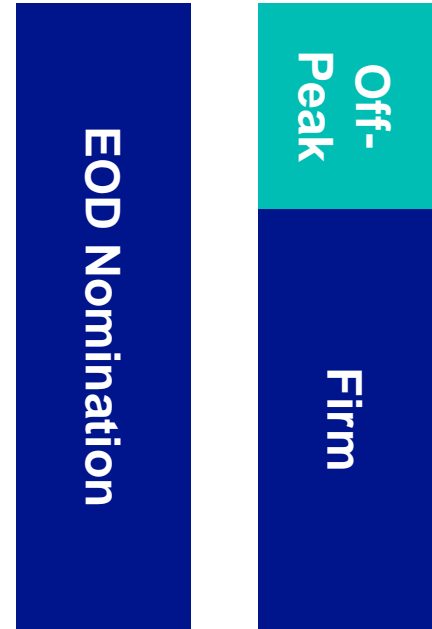
Operating Margins

- Pre-contracted reduction in Demand or increase to Supply
 - Power Stations
 - LNG Terminals
 - Storage Sites



Scale-back off-peak exist capacity

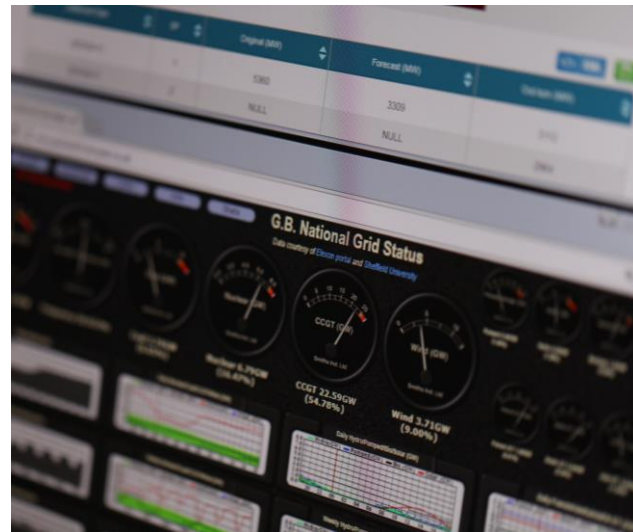
- 4 hours notice
- All exit points reduce to their firm capacity booking
- Over-run charges applied for non-conformance
- Scale-back can roll over to D-1
- Nominations submitted beyond firm capacity for D-1 can be rejected



Capacity
Holdings

Trading

- GNCC buys 'title' to gas to raise the SMP Buy price
 - Shippers out of balance End Of Day are cashed out at an inflated price
-
- GNCC conducts locational trades with entry and exit points to buy gas onto and off the network
 - This sees actual flows (or reduction of flows)



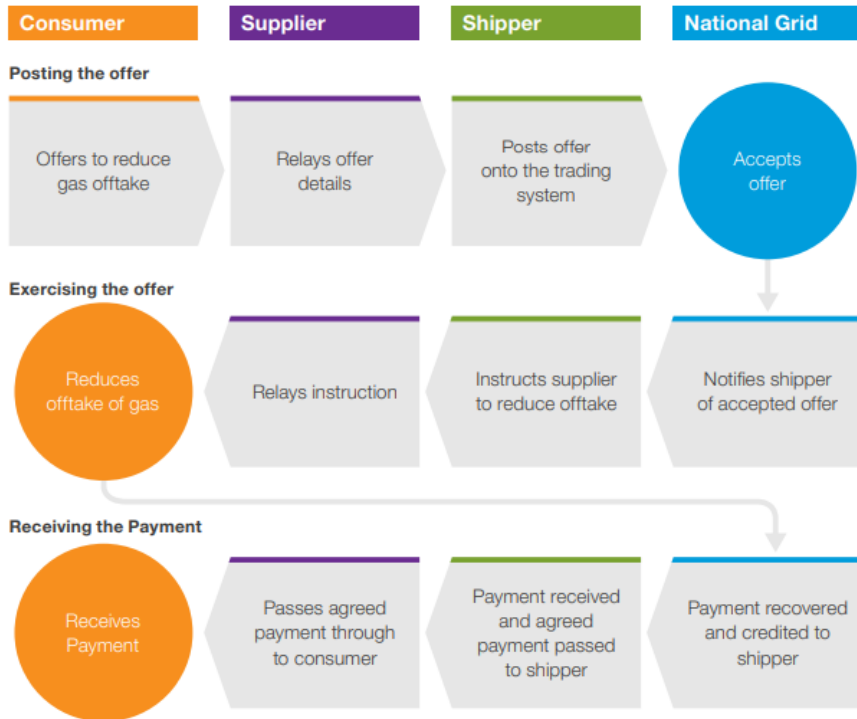
Pre-emergency outcome

- High gas price e.g. £5-10/therm
- Heat based industry at base load
- Supply 'headroom' maximized
- Power generation conflicted between the two markets
- Electricity system in stress – potentially requiring demand control measures



Demand Side Response

The gas DSR process



The role of each party

Consumer: eligible gas consumers contact their gas supplier / shipper and offer to reduce gas consumption for a fee. If instructed gas consumption will be reduced.

Supplier: if involved the supplier acts as the intermediary between the consumer and shipper.

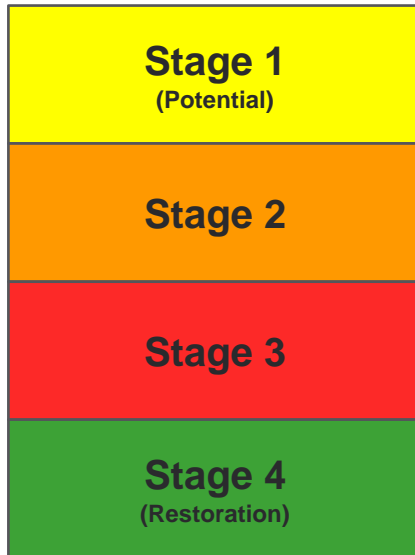
Shipper: following consumer agreement the Demand Side Response offer is posted onto a central trading system which only National Grid can accept. Consumers will be informed if their offer is accepted.

National Grid: subject to gas emergency circumstances, National Grid will accept the offer informing the gas shipper.

NGSE Stages



Emergency Stages



- NEC Safety Case outlines FOUR emergency stages
- Each stage has defined actions available
- NEC authorises the declaration of each emergency stage
- Actions may be taken out of sequence but the stage must be declared before actions taken
- For an NEC to declare an Emergency it is assumed National Grid have taken all Commercial and Physical actions available

STAGE 1



- **Emergency Specification Gas**
- **NTS Line Pack**
- **Distribution Network Utilisation**
- **Public Appeal**

BREAKING NEWS

Gas Crisis:

National Grid Declares a Gas Supply Emergency – The UK could run out of gas TODAY!

STAGE 2



- **NG Gas suspends participation in On the day Commodity Market (OCM)**
- **Direct Supplies into NTS (maximise)**
- **Load Shedding**
- **[Electricity System Stress]**
- **Public Appeals**

BREAKING NEWS

Gas Crisis impacts UK Industry:
The lack of of gas supplies impacts GB industry

Stage 2 – Priority Customers

Category A

Consumers (above 25,000 tpa, 732 MWh) where a failure in the supply to their premises could put lives at risk.

E.g. hospitals or homes for the elderly and disabled.

Category C

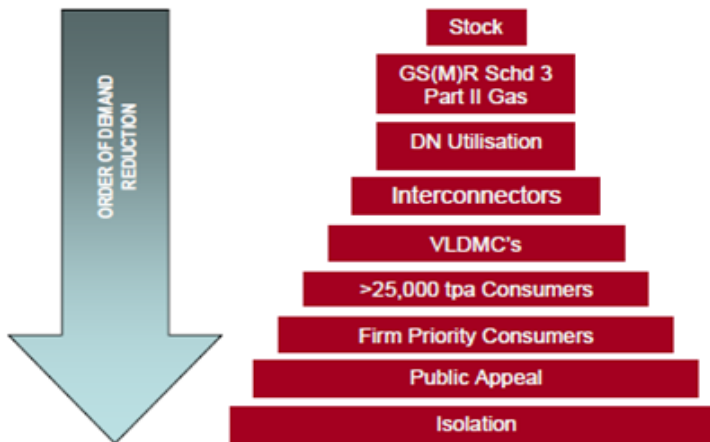
Consumers operating major items of capital plant, which require time to be safely shut, down and would sustain serious damage (£50 million or more) if gas supplies ceased suddenly

E.g. furnaces and glass works.

Stage 2 – Load shedding protocol

- Load shedding must be performed as follows

Figure 7 – Priority Customer Protocol



STAGE 3



- **Public Appeals**
- **Allocation and Isolation (domestic gas users loose their supply)**

BREAKING NEWS

Domestic gas supplies isolated:

UK Households will be isolated from gas supplies by the end of the day

Public Appeals (any stage)

Public Appeal #1

Appeal to use
LESS gas

Public Appeal #2

Appeal to STOP
using gas



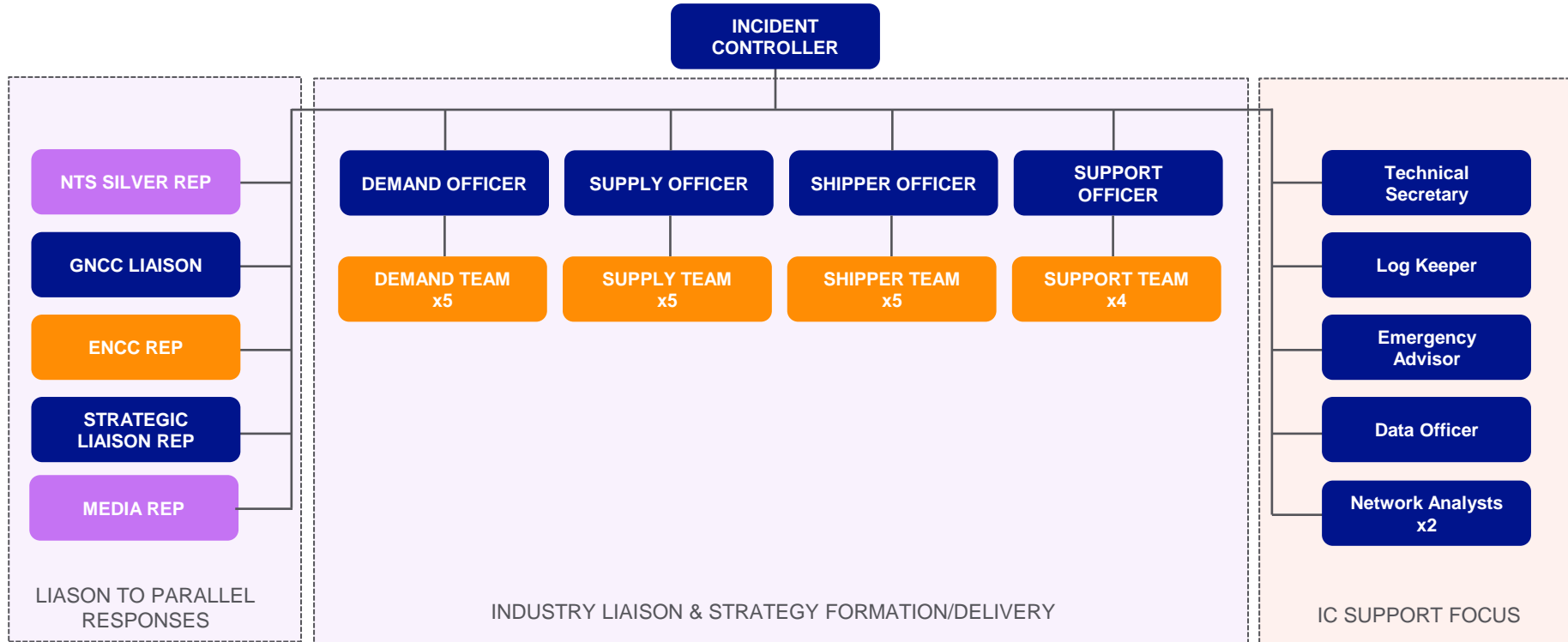
Gas
Transmission

Network Emergency Management Team (NEMT)

nationalgrid



Network Emergency Management Team



CORE TEAM

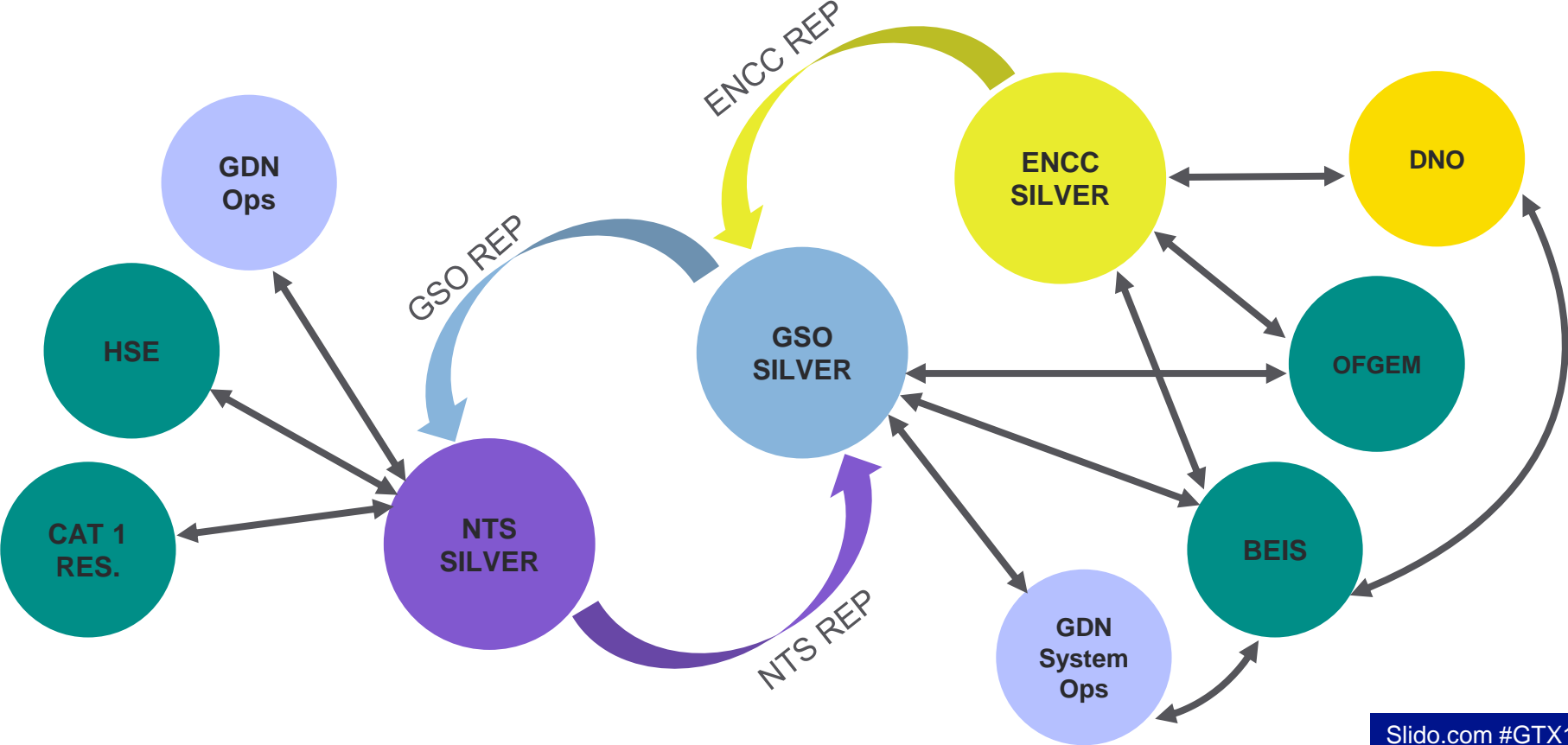


EXPANDED TEAM



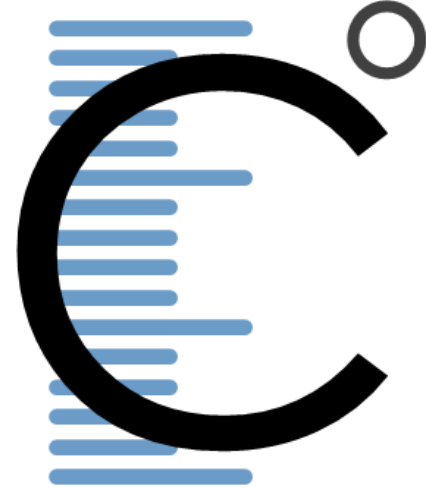
NON NEMT LIAISON REPS

Whole System Interactions



NEC Industry Exercise 'Celsius'

EXERCISE CELSIUS



Post Exercise Report Process



- Gather Industry Feedback

- Form initial findings

- Commitment from working groups to take workplan actions

- Post Exercise Report (Jan '22)

<https://www.nationalgrid.com/uk/gas-transmission/safety-and-emergencies/network-gas-supply-emergencies-ngse>

Exercise Disrupt

A series of industry events, sponsored by the E3C Gas Task Group, to examine and assure preparedness for the restoration of the gas network following an NGSE

- Industry Workshops Jan-Feb '22
- ECQ workshop Feb '22
- Tabletop Exercise Mar-Apr '22
- Process enhancements Jun '22
- Simulated Exercise July '22



Restoration Workshops
Network Entry Facilities (incl. Storage & LNG)
Shippers
Electricity Generators (Gas Fired)
ESO/DNOs
Public Interest Groups i.e. Citizens Advice/Local Resilience Fora
Governance: HSE, Ofgem, BEIS

Q&A



Thank you for joining us today

Keynote speech	Complete	Watch again
Future of Gas	Complete	Watch again
Innovation – broadening the horizon	Complete	Watch again
Gas Market Plan	Complete	Watch again
Transitioning to a hydrogen backbone	Complete	Watch again
Managing methane emissions	Complete	Watch again
Supporting regional hydrogen transitions	Complete	Watch again
Understanding the skills needed for a net zero world	Complete	Watch again
Digital Strategy and Information Provision	Complete	Watch again
Operating the network	Complete	Watch again
Gas Emergency Frameworks Overview	Complete	Watch again
FutureGrid 2021 Progress report	Tue 14 th Dec 10.00 – 11.00	Register here
Annual Network Capability Assessment Report	Wed 15 nd Dec 10.00 – 11.00	Register here

What next?



You will receive the recording and material from today's session



If you have any further questions or would like to discuss anything specific please get in touch with Jennifer.Pemberton@nationalgrid.com



Feedback is important to us, therefore if you have not already taken part, we would like to put you forward for a survey

national**grid**